

6.B PLAN FOR COMMERCIAL WIRELESS TECHNOLOGY FACILITIES

EXECUTIVE SUMMARY

Over the past several years, local governments and municipalities across the nation have been inundated with requests to construct new facilities, primarily in the form of tall towers, to support a growing market for wireless telecommunication applications. The group of wireless services provided are termed Personal Communication Services (PCS) and commonly include phone, paging and wireless internet. These services play an important and vital role in many personal and business applications.

The Telecommunications Act of 1996 mandates that localities cannot prohibit development of towers and other ancillary equipment but provides latitude in formulating plans and policies which address issues associated with wireless technology development. The challenge facing most localities is to develop a plan that complies with the requirements of the Telecommunications Act of 1996, while at the same time adequately addresses the issues and concerns of the citizenry.

Co-location of equipment on existing structures is preferable to construction of new towers. There are five Culpeper County-owned emergency communications towers available for co-location. In areas where structures currently do not exist, Permitted Commercial Tower Development Areas (PCTDA's) have been identified where tower development would be permitted. Ten PCTDA's are identified in this plan. Two of these contain existing towers. New development in these areas must conform with County ordinances governing tower siting as well as federal and state regulations. Towers outside of PCTDA's should be short enough to be totally obscured from view.

The plan contained within this document enhances current and future technological needs and maintains an aesthetically pleasing environment for the residents and visitors of Culpeper County through a rational, logical and equitable plan for siting towers and antennae.

REVIEW OF WIRELESS TECHNOLOGIES

CELLULAR

Communications systems, especially Advanced Mobile Phone Service (AMPS) that divide a geographic region into sections are referred to as cells. The purpose of this division is to maximize the capacity of a limited number of transmission frequencies. Each connection or conversation requires its own dedicated frequency, and the total number of available frequencies is approximately 1,000. Cellular systems allocate a set number of frequencies for each cell to support more than 1,000 simultaneous conversations. Equipment limitations can reduce this number significantly. Two cells can utilize the same frequency for different conversations as long as the cells are not adjacent to each other.

There are two other analog systems in operation in the United States. They are the *Extended Advanced Mobile Phone System (EAMPS)* which has currently replaced AMPS as the US standard, and *Narrowband AMPS* which has three times as many voice

channels as EAMPS with no loss of signal quality. All three systems are analog systems and are backward compatible; that is, the infrastructure is designed so that older phones work on the newer systems.

TABLE 6.B1: GLOSSARY

AGL – Above Ground Level – height above ground as measured from the ground to the top of the structure.

AMSL – Average Mean Above Sea Level – sum of above ground level (AGL) and ground elevation (GE).

Antenna – an exterior apparatus designed for telephonic, radio, or television communications through sending and/or receiving electromagnetic waves.

Bandwidth – range of signal frequencies that a medium responds without excessive attenuation (loss of signal strength).

Broadband – High speed Internet access technology, delivering access hundreds of times faster than dial-up.

Cellular Communication – communication via low power transmitters to service geographical areas or cells (see Review of Wireless Technologies).

Co-location – sharing space on a structure to support multiple carriers.

GE – Ground Elevation – height of the ground above sea level.

Guyed Lattice Tower – lattice tower supported vertically by wire cables.

LEC – Loop Exchange Carrier – a communications company licensed to provide local exchange service for telephony service providers.

Mini/Micro Cell – small structure, not greater than 80' AGL, used to fill “holes” in coverage.

Monopole – cylindrical, self-supporting structure, erected vertically, used to mount antennae.

MW Link – Microwave Link – digital service licensed by the FCC to transmit and receive compressed voice data. Microwave systems are used to transmit large amounts of data, from point to point, over greater distances than traditional broadcast systems (see Review of Wireless Technologies).

Propagation – physical principle of energy emitted through broadcasting a frequency as it relates to transmission, power, ASML, antenna gain and transport loss.

PCTDA – Permitted Commercial Tower Development Area.

RSA – Regional Service Area.

RX – Receiver – wireless radio device that receives a broadcast from a transmission device allowing the broadcast circuit to be completed.

Self-Supporting Structure – a free-standing monopole or lattice design tower that requires no additional support.

Slots – amount of serviceable co-location positions.

Topographic Study – how terrain, other land forms and natural features impact the transmission and receipt of radio waves.

TX – Transmitter – wireless radio device that broadcasts a signal received by a specific receiver device.

Wireless Internet – provision of internet services through specialized devices over a wireless network.

PCS

Personal Communications Service is a term used to describe the set of digital cellular technologies currently deployed in the United States. PCS technologies include Code Division Multiple Access (CDMA), Global System Mobile Communication (GSM), and North American Time Division Multiple Access (TDMA), also known as IS-136. Two of the most distinguishing features of PCS systems are that they operate at the 1900 MHZ frequency range and are completely digital.

CDMA

Code Division Multiple Access refers to a digital cellular technology that uses spread-spectrum techniques. Unlike competing systems such as GSM that use time-division multiplexing (TDM), CDMA does not assign a specific frequency to each user. Instead, every channel uses the full available spectrum. Individual conversations are encoded with pseudo-random digital sequence.

CDMA is a military technology first used during World War II by the English Allies to foil attempts at jamming transmissions. The Allies decided to transmit over several frequencies, instead of one, making it difficult for the Germans to intercept the complete signal. Qualcomm Inc. created communications chips for CDMA technology that allowed the company sole access to the classified information. Once the information became public, Qualcomm claimed patents for the technology and became the first to commercialize CDMA.

TDMA

Time Division Multiple Access is a technology designed to provide digital wireless service using time-division multiplexing (TDM). TDMA works by dividing a radio frequency into time slots and then allocating slots to multiple calls. This allows a single frequency to support multiple, simultaneous data channels. TDMA is used by the GSM digital cellular system.

GSM

Global System Mobile Communications is one of the leading digital cellular systems. GSM uses narrowband TDMA, which allows eight simultaneous calls on the same radio frequency. GSM, first introduced in 1991, is available in over 100 countries and has become the *de facto* standard in Europe and Asia.

SMR

Short for Specialized Mobile Radio, SMR is a two-way radio used to transmit and receive signals. This technology allows a basic two-way radio to designate a specific Narrowband channel to broadcast and receive, thus creating a “secure” channel for communication.

MW

Microwave is a medium of communication licensed by the Federal Communication Commission (FCC) as services used to transmit and receive compressed voice and data. These systems typically are direct point-to-point transmissions in which large amounts of information may be sent over a longer distance versus a short broadcast. Typically, this technology is digital.

PAGING

Wireless medium of communication via the transmission of data designed for messaging services. This technology has evolved from single (receive-only) radio tones to two-way transmission and receiving of alphanumeric messaging.

INTERNET

Internet is the electronic medium by which information may be uploaded or downloaded whereby it may be reviewed, manipulated and/or used for personal and commercial applications. This technology is typically sent via a wire Local Exchange Carrier (LEC) network. However, the technology is available for the deployment of a wireless network.

WIRELESS COMMUNICATION TECHNOLOGY PLAN: CULPEPER 2015 LAND USE PLAN

INTRODUCTION

The goals, objectives and policies for a Wireless Communications Technology Plan are intended to provide a framework for evaluating telecommunications proposals under the County's development review process set forth in the Culpeper County Zoning Ordinance. The plan addresses industry needs as they relate to telecommunication infrastructure while minimizing impacts on adjacent and surrounding land uses, especially existing and/or planned residential communities and historical landmarks. The plan is also designed to support economic growth and public safety. Wireless communication provides a valued service to Culpeper County residents; however, this technology must be implemented in a way that is sensitive to the physical and visual characteristics of the County.

Cell Site Opportunity

Under the Telecommunications Act, wireless communication services providers are not treated as public utilities or franchises but rather as competitors in an open market. Although the free market approach is intended to result in the best communication service for the least cost, it will also result in an increase in the number of wireless communications antennae and towers.

As each provider develops its own system independently, there exists the potential for multiple antenna systems. There has not been a great deal of concern where antennas can be co-located on existing conforming structures. However, where suitable structures do not currently exist, the deployment of these systems will involve requests for a number of potential sites for wireless communications towers. This must be balanced with the interests of the public health, safety and welfare, and community aesthetics.

Demand for wireless communication technology is increasing, while appropriate locations for such facilities are increasingly difficult to locate. Telecommunication towers have special land use implications. The placement of towers impact surrounding land uses and creates a visual impact on everyone who can see these facilities. With clear standards, the wireless service providers will be able to select locations that have the least impact, thereby increasing the likelihood of approval.

EXISTING COMMUNICATION STRUCTURES

Presently, numerous existing or approved structures capable of supporting antenna are in place throughout the County. Co-location opportunities exist on many of these sites.

Virginia Power

Virginia Power Company has several large power transmission corridors that cross the County in which power mounts could be added to serve as telecommunications facilities. These corridors consist of easements and right-of-ways, and combined, are over several miles in length. These corridors offer many opportunities for co-location of transmission towers and communications antennas. Virginia Power has worked closely with the telecommunications industry in facilitating co-location of transmission towers and communication antennas, as well as, co-location within their right-of-way.

Public Sites

The governmental sites within the County that may be appropriate for siting commercial wireless communications facilities include selected fire stations, libraries, landfills, post offices, emergency communications sites, water tanks and other public facilities. These facilities are often large enough to allow sufficient separation from surrounding residential uses or are located adjacent to industrial land use. Even on these sites, steps must be taken to minimize impacts on surrounding properties. These steps may include camouflaging such as attachments to the existing light poles or power mounts, tree-like structures, and the erection of silos where antennae are hidden on the top portion of the structure. The material which allows radio signals to penetrate through the structure is a Radio Frequency Transparent (RFT) fiberglass that can be molded into different textures and shapes.

Buildings

Antennas can be mounted on the roofs or sides of buildings. While most buildings in the County are less than 35' tall, there are some structures that are taller and could be used for co-location opportunities provided that the antenna(e) are not visible from the road or are screened with radio frequency transparent materials that camouflage the antennae. Farm silos offer such opportunities.

Churches

Many churches in the County present the wireless provider with the potential for locating antennae inside of existing steeples. Steeples may also be built to screen antennae arrays. The church community may welcome this type of proposal, because it would provide additional revenue.

Private Land

Although the use of existing facilities is preferred to the construction of new ground-mounted facilities, opportunities exist for the development of freestanding camouflaged mounts on private land.

PUBLIC SAFETY

It is within the purview of local government to regulate the manner in which structures are located and constructed in order to protect the safety of its citizens. Safety is referred to as any physical hazards that can be measured and protected against. The following are safety issues related to wireless facilities.

Radio Frequency Emissions

At high levels, certain kinds of radio frequency radiation (RFR) are known to be associated with environmental health risk factors. However, the level of power at which wireless technologies operate is relatively low and is not the type normally associated with health risks. The Telecommunications Act prohibits denial of the placement of telecommunication facilities solely on the basis of radio frequency emissions, as long specific standards are met. The Act states:

“No State or local government or instrumentality thereof may regulate the placement, construction and modification of personal wireless service facilities on the basis of environmental effects of radio frequency emission to the extent that such facilities comply with the Commission’s regulations concerning such emissions.”

Because the FCC does not review each cell site, it is incumbent upon local government to assure that RF standards are being met. At a minimum, this should involve certification by the carrier and concurrence of the County communications manager that the proposed cell site meets the FCC guidelines.

Structural Hazards

Structural hazards associated with wireless facilities include potential collapse of antenna mounts and potential crumble of equipment or debris from the structure. Tower structures are constructed to BOCA National Building Code Standards and typically can withstand hurricane force winds up to 110 mph. Structures are also designed to collapse into themselves if there is a failure. In response to potential hazards, some local governments designate a “fall zone” around the base of the antenna mount. These are generally exposed as distance-to-height ratios. The basis for these setbacks is to prevent damage from ice or other falling debris from the antenna platform.

GOALS, OBJECTIVES AND POLICIES

The goals, objectives and policies of the Plan for Commercial Wireless Technology Facilities are designed to seek a balance between providing wireless communication

service to County residents and businesses while remaining sensitive to the location and appearance of these facilities.

Goals

- To encourage managed development of wireless communications infrastructure, while not unreasonably interfering with the development of the competitive communications marketplace.
- To maintain and preserve the agricultural and residential character of the County and its neighborhoods, and to promote the creation of an attractive and harmonious community.
- To ensure that wireless communications towers and related wireless communications facilities are compatible with surrounding land uses.
- To provide a uniform and comprehensive set of standards for the development and installation of wireless communications towers, antennas and related facilities.
- To promote public safety and to avoid risk of damage to adjacent properties by ensuring that wireless communications towers and related wireless communications facilities are properly designed, constructed, modified and maintained.

Objectives

- Minimize the adverse visual impacts of wireless communications towers and related facilities through careful design, siting, landscape screening, and innovative camouflaging techniques.
- Horizontally separate wireless communications towers from residential neighborhoods, major transportation corridors, Virginia Byways, and visually sensitive areas to the extent necessary to minimize visual obstruction.
- Encourage the use of alternative support structures, co-location of new antennas on existing wireless communications towers, camouflaged towers, and construction of towers with the ability to maximize additional providers.
- Ensure that co-location opportunities are fully met before permitting new wireless communications towers.
- Ensure that the development of wireless facilities is done in a manner that meets all requirements and standards of the Federal Aviation Administration, the Federal Communications Commission, and the Uniform Statewide Building Code.
- Ensure the timely removal of obsolete or abandoned equipment at no cost to County residents.
- Ensure that telecommunication providers implement any reasonably available technology that may reduce the number or height of towers.

POLICIES

General Policies

- Encourage the placement of antennas on existing structures (including, but not limited to, existing towers, utility poles, water tanks, building rooftops and other tall structures).
- Encourage, when appropriate, the upgrade or replacement of lower towers with taller towers designed to maximize co-location opportunities.
- Expedite the permitting of wireless communication towers that have minimal visual impacts and meet all regulatory standards.
- Maintain an inventory of tower sites and all existing telecommunication facilities. This information shall be used to determine co-location opportunities.
- Coordinate with adjoining localities when a tower request is proposed near the County boundaries.
- Encourage future providers to propose a plan for their “build out” coverage grid for the entire County.
- Obtain industry and citizen input in the future development of local wireless communications regulations.

Siting Policies

- Towers in or near to areas zoned or planned for residential uses are strongly discouraged.
- Non-camouflaged towers adjacent to or in close proximity to existing or planned residential uses are discouraged.
- New towers should be considered only when co-location or replacement of existing towers is not feasible.
- County-owned, state-owned or federally-owned properties and facilities should be considered to encourage proper siting of commercial wireless communications towers provided that:
 - The use and character of public properties and adjacent properties are not significantly impacted;
 - The proposed telecommunications facilities are consistent with all elements of the land use plan and the zoning ordinance; and

- Appropriate approvals and agreements are reached with public agencies, boards or authorities.
- Co-location on County Emergency Communications Towers (2201, 2202, 2203, 2204, & 2205) should be among the first considerations for siting equipment.
- New telecommunications sites in permitted commercial tower development areas (PCTDA's) should be constructed to a maximum height of 199'. In instances where co-location opportunities would be significantly increased, or where it is shown to be necessary to provide adequate service, additional heights can be considered. Reduced tower height may be appropriate in sensitive locations.
- Towers outside of PCTDA's are discouraged and will only be considered for "infill" purposes at a height of 80' or less. These should be almost completely obscured from view.
- If co-location opportunities are not possible, siting of towers should be encouraged at locations within wooded areas or remote sites apart from residential structures. While such locations may not obscure the entire view of the tower, they may reduce the visual impacts.
- Towers should be located on a down-slope point below ridgelines.
- New towers or antenna structures shall not block the County's microwave paths or interfere with the public safety radio system.
- New towers should not be located directly adjacent to roads that are part of the primary system of State Highways.
- No tower shall be located within one mile of a Virginia Byway unless an acceptable stealth tower design is utilized. Towers necessary for emergency communications may be excepted.
- No tower shall be located in a manner which would interfere with emergency helicopter routes to and from area hospitals.

Design Policies

- Camouflage tower designs should be considered for various applications. Monopoles are preferred over lattice towers.
- Limited clearing of the site is recommended. Existing mature vegetation should remain.
- Security fencing and visible tower locations should be screened from public view. A row of evergreen trees is recommended. Plantings should be a minimum of 8 feet tall with a maximum of 10 feet apart planted around the perimeter of the fence with a continuous hedge at least 30 inches high in front of the tree line.

- Lighting and painting of a tower are discouraged unless required by the FAA. Towers should be constructed at reduced heights in order to eliminate lighting requirements. However, when lighting is required, it should be shielded and oriented inward in order to prevent projecting on surrounding properties. Flashing strobe lights should be limited to requirements by the FAA.
- Earth tone colors for equipment shelters are recommended. Where appropriate, graduated painting of towers is encouraged (see site 2012 photos).
- When antennas are attached to an existing building, they should be designed and painted to blend with the existing structure.
- Antenna mounts should be flush mounted in locations that are most visible or sensitive.
- An FAA Feasibility or Aeronautical Study be completed by all applicants for the proposed facility while showing that the structure will not interfere with airspace safety.
- Engineering studies are required for all proposed facilities to show propagation coverage area and suitability of the facilities for co-location of multiple additional antennae.

EXISTING TOWER SITE SUMMARY

Table 6.B2 lists existing antenna sites throughout Culpeper County. Sites are identified by a Case Number, Structure Owner or Carrier, Latitude/Longitude Coordinates, AGL, GE, AMSL, the amount of serviceable co-location positions (Slots) available, and Tower Type.

Only those structures where co-location is feasible are identified on the list. Structures that are not capable of supporting additional equipment are not included. Additionally, structures that may have available slots but are not available for commercial applications, such as military structures, were also excluded from the list.

PERMITTED COMMERCIAL TOWER DEVELOPMENT AREAS

A significant infrastructure of towers, water tanks, and other structures capable of supporting wireless communication equipment is in place throughout Culpeper and adjoining counties. Many of these structures are currently utilized to mount antennas, microwave dishes, paging whips and other ancillary equipment that compose a wireless communications system network. Many different types of above ground structure, other than towers, possess the potential for mounting equipment. Some of the more common non-tower mounts are rooftops, water tanks, grain silos and church steeples.

Approximately 20 structures capable of supporting wireless communication equipment exist throughout the county and several miles beyond its border. Propagation studies were performed on each structure in order to determine coverage areas. This analysis revealed that adequate coverage is available through the utilization of existing structures over approximately one-third of the county. In the residual areas where coverage does not

exist, Permitted Commercial Tower Development Areas (PCTDAs) are identified. PCTDAs are areas where tower development is needed to provide Countywide coverage.

Ten PCDTA's are identified in the county. Each PCTDA covers an area two-miles in diameter. The allowable tower height is 199'. At this height, each structure could support a maximum of five carriers. Mini/micro towers (normally limited to 80' AGL) may be developed outside the PCTDA's as long as their placement is camouflaged. These sites are typically developed to fill small "holes" in coverage or to provide additional capacity.

The purpose for identifying each PCTDA is to provide areas for tower development needed to fill large voids in coverage. The development of each area will afford carriers the opportunity to create networks throughout the entire county that will result in nearly 100 percent coverage. The PCTDAs were carefully selected to minimize the number of new structures, yet provide the opportunity for blanket coverage throughout the county. Each PCTDA provides opportunities to minimize visual impacts through natural screening, avoids byways, primary highways, air navigation facilities and historic areas, and provides the best locations, given the considerations above, for tower development in terms of topography, interference and coverage.

The ten PCTDA's are as follows. The map at the end of this chapter depicts the sites of each PCTDA provided below.

PCTDA 1 (True Blue) – This site is intended to provide coverage in the southern portion of the County for the Route 522 corridor. The highest ground elevation in this area is approximately 350'.

PCTDA 2 (Ag. Enterprise) – This site is intended to provide coverage along Route 29 corridor, and to a lesser extent, along the Route 15 corridor southwest of the Town of Culpeper. The ground elevation of the existing tower (2013) in this area is approximately 440'.

PCTDA 2A (Cedar Mountain) – This site is intended to provide coverage along the Route 15 corridor southeast of the Town to the Madison County line. The ground elevation of the existing tower (2026) in this area is 470'.

PCTDA 3 (Parish) – This site is intended to provide coverage for the western region of the County. The highest ground elevation in this area is approximately 815' on Parish Mountain.

PCTDA 4 (Scotts Mountain) – This site is intended to provide coverage for the northwestern region of the Route 522 corridor. The highest ground elevation in this area is approximately 890' on Scott Mountain.

PCTDA 5 (Eggbornsville) – This site is intended to provide coverage for the northwestern region of the County. The highest ground elevation in this area is approximately 400'.

PCTDA 6 (Korea) – This site is intended to provide coverage for the northwestern region of the County. The highest ground elevation in this area is approximately 500'.

PCTDA 7 (Lakota) – This site is intended to provide coverage in the eastern region of the County. The highest ground elevation in this area is approximately 450'.

PCTDA 8 (Coles Hill) – This site is intended to provide coverage in the eastern portion of the County between Route 3 and the Rappahannock and Rapidan Rivers. The highest ground elevation in this area is approximately 250’.

PCTDA 9 (Stevensburg) – This site is intended to provide coverage along the Route 3 corridor. The highest ground elevation in this area is approximately 470’, near Hansbrough Ridge.

PROCESS FOR NEW CONSTRUCTION IN PCTDA

Ten Permitted Commercial Tower Development Areas (PCTDA’s) are identified in the plan as areas suitable for future tower development. Any proposal to construct a new tower in one of the PCTDA’s is not exempted from the normal County Zoning review process. The purpose of this review is to ensure conformance with applicable ordinances and requirements. PCTDA’s which have already been subject to tower construction are assumed to be complete. Subsequent carriers should seek collocation on the tower in the PCTDA. The basic steps and information required in order to process applications for new tower construction are described below.

- The applicant’s proposal must adhere to all existing County policies and standards pertaining to new construction. Any deviance must be identified in the application.
- The applicant should submit the proposed drawings, specifications, FAA air navigation hazard determination, propagation coverage maps, and photographic imagery depicting the new structure in addition to other documents as required.
- Once approval has been granted, a building permit would be required. The applicant should be required to complete construction within six (6) months from the date of permit issuance in order not to unreasonably delay the plans of other applicants seeking co-location on the approved structure.
- Subsequent applications for new construction in a PCTDA, in which a structure has been constructed or exists, must include a structural analysis, interference study and propagation models clearly proving that co-location on all existing structures is not feasible before additional development within the PCTDA will be considered.

TABLE 6.B2 EXISTING STRUCTURES FOR COLOCATION

Case #	Owner or Company	Latitude	Longitude	AG L	GE	AMS L	Slots	Tower Type
Culp-2001	Telecom CNSLT	38-27-36 N	77-59-33 W	60'	482'	542'	1	Lattice SS
Culp-2002	Alltel	38-28-14 N	77-59-39 W	260'	433'	693'	3	Monopole
Culp-2003	Bell Atlantic Mobile Systems (BAMS)	38-28-32 N	77-59-32 W	120'	400'	520'	1	Lattice SS
Culp-2004	Cellular One	38-28-56 N	77-57-45 W	220'	460'	680'	1	Lattice SS
Culp-2005	State Police	38-29-41 N	77-55-36 W	575'	347'	922'	6	Guyed Lattice
Culp-2006	BAMS	38-31-59 N	77-36-37 W	280'	546'	826'	1	Lattice SS
Culp-2007	WCVA-FM 103.1	38-29-07 N	77-59-28 W	320'	400'	720'	2	Guyed Lattice
Culp-2008	Culpeper Water Tower	38-28-54 N	77-58-53 W	150'	400'	550'	1	Water Tower
Culp-2009	Culpeper Courthouse	38-28-24 N	77-59-50 W	140'	351'	491'	1	Monopole
Culp-2010	Sprint	38-40-26 N	77-54-47 W	140'	446'	586'	2	Lattice SS
Culp-2011	Community Wireless	38-26-29 N	77-59-56 W	165'	455'	620'	3	Monopole
Culp-2012	Community Wireless	38-30-09 N	77-53-52 W	149'	351'	500'	3	Monopole
Culp-2013	Sprint	38-27-12 N	78-03-19 W	199'	439'	638'	2	Monopole
Culp-2014	Culpeper Water Twr.	38-29-19 N	78-01-24 W	60'	498'	558'	1	Water Tower
Culp-2016	Culpeper Fire Tower	38-24-31 N	77-45-13 W	110'	351'	461'	1	Lattice SS
Culp-2017	SBA	38-30-58 N	77-48-52 W	260'	298'	558'	3	Lattice SS
Culp-2018	Alltel	38-30-10 N	77-53-29 W	50'	341'	391'	1	Monopole
Culp-2019	Culpeper Memorial Hospital	38-27-20 N	78-00-43 W	80'	462'	542'	1	Roof Guyed Tower
Culp-2020	BAMS	38-18-58 N	77-58-51 W	350'	595'	943'	1	Guyed Lattice
Culp-2021	Alltel	38-34-52 N	77-58-45 W	130'	387'	517'	1	Monopole
Culp-2022	Alltel	38-27-40 N	78-07-34 W	160'	498'	658'	1	Lattice SS
Culp-2023	AT&T Cable	38-29-01 N	78-02-43 W	180'	400'	580'	1	Guyed Tower
Culp-2024	AT&T & BAMS (3 Towers)	38-18-39 N	78-00-10 W	350'	898'	1248'	3	Lattice SS
Culp-2025	FAA/Two-way Tower (2 Towers)	38-26-32 N	77-57-46 W	80'	791'	871'	1	Guyed & Lattice SS
Culp-2026	Community Wireless	38-23-44 N	78-05-05 W	199'	470'	669'	6	Monopole
Culp-2201	Culpeper County	38-24-06 N	77-43-56 W	360'	387'	747'	3	Guyed Lattice
Culp-2202	Culpeper County	38-20-58 N	77-48-08 W	360'	594'	954'	4	Guyed Lattice
Culp-2203	Culpeper County	38-35-36 N	77-56-43 W	360'	310'	570'	5	Guyed Lattice
Culp-2204	Culpeper County	38-20-07 N	78-02-04 W	360'	351'	711'	5	Guyed Lattice
Culp-2205	Culpeper County	38-29-38 N	77-59-38 W	190'	445'	635'	Est. 2	Monopole

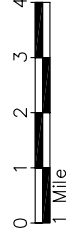
Site 2012
150' Monopole w/Graduated Painting



Sunny Day



Overcast Day



Rt 615 VIRGINIA SCENIC BYWAY